REMARKS

In view of the above amendments and following remarks, further reexamination and reconsideration are respectfully requested.

By this amendment, the previously pending claims have been canceled in favor of newly added claims 39-46. Accordingly, it is submitted that claims 39-46 are currently pending in this application. It is submitted that no new matter has been added.

Moreover, by this Amendment, the Title of the Invention has been replaced with a new Title which is clearly indicative of the present invention to which newly added claims 39-46 are directed towards.

Next, it is noted that the Examiner has rejected previous claims 35-38 under 35 U.S.C. §103(a) as being unpatentable over Murakami et al. (USPN: 5,274,442) in view of Lee (USPN: 5,990,956) as noted in paragraph 4 on page 3 of the Office Action.

Without intending to acquiesce to the Examiner's aforementioned prior art rejection and in order to expedite allowance of this application, previous claims 35-38 have been cancelled and replaced in favor of newly added claims 39-46 which have been drafted so as to more clearly distinguish the present invention over the prior art relied upon by the Examiner.

Accordingly, it is submitted that the present invention, as least as now claimed in each of newly added independent claims 39, 41, 43, and 45, clearly patentably distinguishes over the references relied upon by the Examiner for at least the following reasons.

According to the present invention, as recited in each of newly added independent claims 39 and 43 and as depicted in Figures 9 and 10 (embodiment 3) of the present application, an image coding method and computer readable data recording medium are provided in which motion compensation predictive coding is performed for an input image, wherein when the input image is an interlaced image, pixel values of insignificant pixels in the input image are padded in field units (via field padding unit 128b of Fig. 9(b)), and when the input image is a progressive image, the pixel values of insignificant pixels in the input image are padded in frame units (via frame padding unit 128a of Fig. 9(b)). Thus, the determination of whether the padding process for a coded input image to be

used in motion compensation predictive coding should be performed in field units or frame units is based on whether an input image is an interlaced image or a progressive image, respectively.

Particularly, the present invention recited in independent claims 39 and 43 provides for performing motion compensation predictive coding for an input image having an arbitrary shape, wherein an input image is identified as being either an interlaced image or a progressive image and identification information indicating a result of the identification is generated, and a reference image which is used in the motion compensation predictive coding is padded on the basis of the identification information such that, the reference image is padded in field units when the input image is an interlaced image, and the reference image is padded in frame units when the input image is a progressive image.

Moreover, it is further noted that according to the present invention, as recited in each of newly added independent claims 41 and 45 and as depicted in Figures 14 (embodiment 4) of the present application, an image decoding method and computer readable data recording medium are provided in which motion compensation predictive decoding is performed for an input image, wherein the similar novel features discussed above for independent claims 39 and 43 are recited. Specifically, the present invention recited in independent claims 41 and 45 provides for performing motion compensation predictive decoding for an input image having an arbitrary shape, wherein an input image is identified as being either an interlaced image or a progressive image and identification information indicating a result of the identification is generated during coding of the input image, and a reference image which is used in the motion compensation predictive coding is padded on the basis of the identification information such that, the reference image is padded in field units when the input image is an interlaced image, and the reference image is padded in frame units when the input image is a progressive image.

As a result of determining whether the padding process for a reference image to be used in motion compensation predictive coding should be performed in field units or frame units based on whether an input image is an interlaced image or a progressive image, respectively, the introduction of high frequency components is prevented during the padding process of the reference image,

thereby effectively reducing prediction errors that may occur in the motion compensation predictive coding using the reference image.

It is strongly submitted that the above discussed novel features of the present invention are encompassed within the limitations of newly added independent claims 39, 41, 43, and 45 of the present application. Further, it is submitted that the above limitations, and the above advantages resultant therefrom, are not disclosed or suggested by the Murakami et al. and Lee references taken either alone or in combination.

First, regarding the secondary Lee reference, the Applicant notes that this reference discloses a method and apparatus for coding an input video signal which includes an arbitrary shaped image, wherein the input video signal is divided into a multiplicity of image blocks of NxN pixels (i.e., 8x8 pixels) [see Fig. 3 and column 3 (lines 60-63)], and the pixel values of insignificant pixels in the input image are padded in the blocks units. The padded input image is then subjected to the SA-DCT as discussed in column 5 (lines 16-31)].

Next, regarding the primary Murakami reference, the Applicant notes that this reference discloses a system for coding an interlace image (see column 3 (lines 55-58)), wherein pixels of an interlace image are re-sampled to generate a plurality of re-sampled images having different pixel re-sampling patterns, and the re-sampled image having the smallest high-frequency component is selected among the re-sampled images so as to then be subjected to DCT. In the coding performed in this system, the DCT processing for the input image is performed not in frame units, but in field units when the motion of the input interlace image is large and the high-frequency component of the input image is large [see for example, column 14 (lines 2-56)]. Thus, it is submitted that the Murakami system suggests the switching of the processing unit in the DCT processing for the input image on the basis of the correlation of pixel values in the input image.

The present invention, on the other hand, implements the determination of whether a reference image to be used in motion compensation predictive coding/decoding should be padded in field units or frame units based whether the input image is an interlace image or a progressive image, respectively. Thus, it is quite evident that the presently claimed invention is significantly different from the Murakami system not only from a standpoint of the particular processing which is switched,

but also from the particular basis upon which the processing is determined to be switched. Stated differently, the processing unit to be switched in the present invention is the padding processing unit (i.e., frame padding unit 128a and field padding unit 128b of Figure 9(a)), and not a DCT processing unit as in the Murakami system. Also, in the presently claimed invention, the processing unit is switched between a field padding unit and a frame padding unit on the basis of whether the input image is an interlaced image or progressive image, whereas the Murakami system switches the DCT processing on the basis of a correlation of pixel values in the input image.

Thus, the features of the presently claimed invention of determining whether the padding process for a reference image to be used in motion compensation predictive coding should be performed in field units or frame units based on whether an input image is an interlaced image or a progressive image, respectively, are not disclosed or suggested by replacing the DCT process of the Murakami reference (i.e., DCT processing switched on the basis of a correlation of pixel values in the input image) by the padding process of the Lee reference (i.e., the pixel values of insignificant pixels in the input image are padded in the blocks units).

Particularly, the Applicant strongly submits that the Murakami et al. and Lee reference, taken either alone or in combination, fail to disclose of suggest performing motion compensation predictive coding/decoding for an input image having an arbitrary shape, wherein an input image is identified as being either an interlaced image or a progressive image and identification information indicating a result of the identification is generated during coding of the input image, and a reference image which is used in the motion compensation predictive coding is padded on the basis of the identification information such that, the reference image is padded in field units when the input image is an interlaced image, and the reference image is padded in frame units when the input image is a progressive image, as particularly recited in each of newly added independent claims 39, 41, 43, and 45 of the present application.

Moreover, the Applicant strongly submits that the Murakami et al. and Lee reference, taken either alone or in combination, fail to disclose of suggest that, in the motion compensation predictive coding, when the input image is an interlace image, the motion compensation predictive coding for the input image is performed in block units each having a predetermined size using the reference

image in which the pixel values of insignificant pixels are padded in field units, as particularly recited in each of newly added independent claims 40 and 44 of the present application.

Lastly, the Applicant strongly submits that the Murakami et al. and Lee reference, taken either alone or in combination, fail to disclose of suggest that, in the motion compensation predictive decoding, when the coded input image is an interlace image, the motion compensation predictive decoding for the coded input image is performed in block units each having a predetermined size using the reference image in which the pixel values of insignificant pixels are padded in field units, as particularly recited in each of newly added dependent claims 42 and 46 of the present application.

For the foregoing reasons, it is submitted that each of newly added claims 39-46 clearly is allowable.

In view of the foregoing, it is submitted that the present application now in fact clearly is in condition for allowance and the Examiner therefore is requested to pass this case to issue.

In the event, however that the Examiner has any comments or suggestions of a nature necessary to place this case in condition for allowance, then the Examiner is requested to contact Applicant's undersigned attorney by telephone to promptly resolve any such matters.

Respectfully submitted,

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